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THE EARLY STAGES OF *LEUCANELLA MEMUSAE* SSP. *GARDINERI* LEMAIRE (SATURNIIDAE)

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SYNOPSIS

This paper describes the rearing of, and illustrates the larva of, a newly described subspecies of *Leucanella memusae* which differs in colour from, and in pupation habits from, the type species. A summary is given of the chief adult differences.

INTRODUCTION

In a recent revision of the genus *Automeris* Hubner, Lemaire (1971; 1973a, b.) has rectified and clarified the position of species in this conglomerate genus. Amongst those species transferred to the new genus *Leucanella* Lemaire, is *memusae* Walker which now consists of the type, *L. m. memusae* (Walker) and a new subspecies *L. m. gardineri* Lemaire, which was named from adults reared by me from eggs shipped to England by Sr. Fritz Plaumann who obtained them in Nova Teutonia, Santa Catarina, Brazil. Eggs of the type species *memusae* were obtained from a local dealer. The type species has been known and bred in England for many years. (Crotch, 1956).

LEUCANELLA MEMUSAE MEMUSAE

The type species is already well known and described. See for instance Crotch, 1956. The present observations confirmed those described by Crotch except that the early stages of the larvae were fed on Laburnum (*Laburnum anagyroides*) the later stages on Privet (*Ligustrum ovalifolium*). The duration of the various

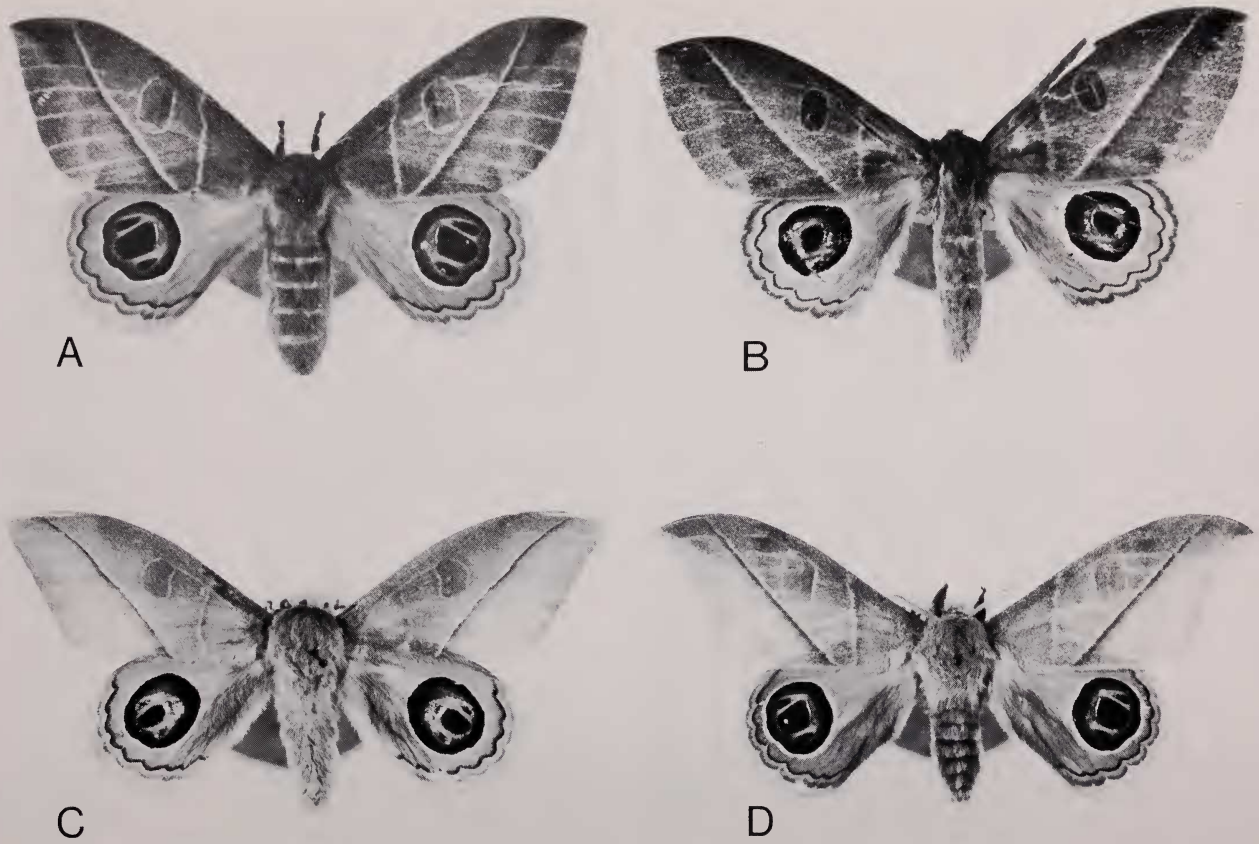

Fig. 1.—Adults of *Automeris memusae*. A. ssp. *gardineri*, female, D, male. B. ssp. *memusae* female, C, male.

stages are given in Table 1. It is only necessary to emphasize here that the pupa was formed above ground, usually in 'litter' on the cage floor and neither in rolled fresh leaf of the foodplant, (as is usual with several *Automeris* species), nor in the specialized condition required by subspecies *gardineri* as described below.

LEUCANELLA MEMUSAE GARDINERI

The chief differences in the adult between this sub-species and the type is set out in Table 2. In addition to those shown, there is a subtle difference in coloration and the subspecies generally has a more falcate wing-tip in the male, and all the markings are clear, distinct and more prominent. Fig. 1 shows the adults for comparison. The length of the various early stages is given in Table 1, from which it can be seen they are essentially similar to those of the type species. The rather longer period spent in the first instar is not considered significant as some second brood larvae took only 9 days.

The larvae were reared at 20-25°C under a constant photoperiod of 18 hours per day, the natural daylength being extended by fluorescent lighting. Young larvae were kept in plastic boxes, larger ones in wooden framed cages covered in white terylene netting and with glass fronts.

The most striking difference between the larvae of the subspecies and the type was in the stinging spines. In the type they are uniformly canary yellow in colour. In the subspecies they are only yellow on the six central segments. On the three anterior and posterior segments they are white except for a few lateral yellow spines. The larvae are shown in Fig. 2. The newly hatched larvae were offered a choice of Laburnum or Privet. All preferred to feed on Privet and this was used and accepted throughout their life. When the time came to pupate the larvae wandered restlessly round and round the cage, although they were supplied with a plentiful stock of leaves, and the cage was covered in peat overlaid with moss, all standard pupation sites for *Automeris* species known to me and providing suitable pupation sites for type *memusae*. In this wandering they were reminiscent of *Dirphia curitiba* Draudt and it appeared they desired a similar pupation site (Gardiner, 1974). This was therefore provided, a half pound tin partly full of moist peat overlaid with a layer of moss and a lid to give total darkness.

Under these conditions all the larvae were successfully pupated, this taking place in a flimsy cocoon under the moss on the surface of the peat.

Most of the resulting adults were used for physiological experiments, but two pairings were obtained without difficulty the moths being in the same type of cages and under the same conditions as the larvae had been kept at. Nearly all the eggs laid hatched and it was noticed that the larvae only partly ate their eggshells. These F.1 larvae readily started to feed on Privet, but of the two batches obtained one lot died just when ready to pupate and the second when half grown. The mortality resembled the disease of larvae caused by nuclear polyhedrosis virus and samples were submitted to the Division of Invertebrate Pathology, Berkeley, California, but they were unable to give an opinion. The author, from his own experience, is however convinced that this is a clear case of transovarial transmission of virus disease, there being no other diseased stock in culture at the time, and it is unlikely (but perhaps not impossible) for a Neotropical species, not represented in the northern hemisphere, to catch a Palearctic virus.

TABLE 1.

The length in days of various stages in the type and subspecies of *Leucanella memusae.*

Stage	*m. memusae*	*m. gardineri*
Egg	18	20
Instar 1	8	14
2	9	10
3	10	11
4	6	6
5	8	12
6	11 - 14	8 - 13
7	14 - 24	12 - 22
Pupa	150 - 180	120 - 150

TABLE 2.

Numerical points of difference between type *memusae* and subspecies *gardineri* (after Lemaire, 1973b).

		L. m. memusae	*L. m. gardineri*
Wingspan	♂	59 - 71 mm	75 - 78 mm
	♀	60 - 84 mm	77 - 89 mm
Antennae	♂	29 segments	32 segments
	♀	31 segments	32 segments
Diameter of ocellus	♂	8 mm	11 - 12 mm
	♀	10 - 12 mm	14 - 15 mm

COVER

Fig. 2.—Larva of *Automeris memusae* ssp. *gardineri* feeding on Privet.

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